

Amendments to the Specification:

Please replace the paragraph beginning at page 12, line 16 and extending to line 21, with the following rewritten paragraph:

In operation of the separator 48, a preferably DC current from a power supply ~~62~~ 61 is conducted through the top and bottom plates 52, 54 and across the adsorbent 30. The electrical current liberates the molecules of the target gas from the adsorbent 30, and the resulting high energy target gas expands through the outlet port 16 and into the outflow conduit 20. During this reaction, the valve 38 prevents the target gas from expanding back into the inflow conduit 18.

Please replace the paragraph beginning at page 12, line 22, and extending to page 13, line 10, with the following rewritten paragraph:

The exact mechanism by which the electrical current effects the desorption of the target gas from the adsorbent 30 is not known. However, the inventors believe that, when the current is conducted through the adsorbent 30, electrons are channeled into the bond between each target gas molecule and its associated adsorbent molecule until the bond is broken and the target gas molecule is liberated from the adsorbent molecule. With respect to the carbon

based adsorbents in particular, one theory is that the electrons from the power supply ~~62~~ 61 displace the electrons of the target gas molecule in the conduction

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band of the adsorbent molecule, thereby freeing the target gas molecule from the adsorbent molecule. Another theory is that the electrons impart sufficient energy to the target gas molecule to allow it to escape the electrical potential binding it to its associated adsorbent molecule.